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ABSTRACT

Research on factors that influence college choice, including sociologic and economic explanations, is reviewed. It is suggested that the following four factors strongly affect college choice: family background, student achievement or ability, some college attributes, and labor-market conditions. School context and college effects moderately affect college selection. The variables of family background, neighborhood context, school context, and student achievement or ability represent sociologic theory, as do college attributes and effects relating to status. Other college attributes and effects represent economic theory, including availability, price, and price adjustments, along with labor market conditions. The basic economic model of the decision to attend college, the human-capital model, considers the costs and benefits of working after high school versus completing various degrees. It is suggested that since student decisions about college are theoretically eclectic, policy and research should not rely on a single theoretical perspective. Omitting any of the variables from a choice model presumably will limit the model's applicability. The use of multivariate analysis of longitudinal data for research on college choice is also supported. (SW)

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# Sociologic, Economic, and Policy Influences on College-going Decisions

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## Abstract

Research on college choice has relied on two major theoretical perspectives and an assortment of methodologies. The result is a research history which defies simple summary. This article reviews existing studies of college choice, identifies variables which seem important, and ranks these roughly in terms of their independent effect on college choice. Family background, student achievement, some college attributes, and labor-market conditions have strong effects on college choice, according to the author's qualitative comparisons, while school context, some other college attributes, and college effects have moderate or potentially moderate effects and other factors have little effect. The implication for further empirical work is that choice models must include the important factors if they are to be comprehensive and bias-free; the implication for policy is that narrowly conceived programs may have unexpected (and perhaps irreproducible) effects.



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Student choices determine the finances, and therefore the health, of colleges and universities. The first assumption any institutional or agency planner makes, for example, has to do with expected (or desired) enrollment, and only if this assumption proves moderately adequate does the ensuing plan have any validity. The implication of all this, until recently, was that projecting enrollments was very important, and to this end colleges and universities learned to describe their "applicant pool" and government agencies constructed elaborate demographic projection models. Over the short term both of these analyses suggested that higher-education enrollments would grow steadily. Institutions and governments planned accordingly. The few analysts who looked beyond the short term (Cheit, 1971 ) observed that long-term prospects were sharply different: growth would slow, end, and reverse as the babies born between the late nineteen-forties and the early nineteen-sixties moved out of college age and into job and housing markets. According to long-term projections, smaller cohorts would replace the baby-boom in the college-going pool.

Long-term projections proved generally valid, and in recent years the rate of growth in higher-education enrollments has approached zero (Frances, 1980). This became apparent even to short-term planners at the beginning of the nineteen-seventies. Given the fundamental connection between institutional health and enrollment in higher education, the "new" trend spelled disaster. Faced with disaster, institutions tend to fight rather than succumb, and since colleges and universities are no exception to this analysts began to ask whether it was possible to modify enrollment patterns so as to reverse -- or at least defer -- the expected

decline. One way to do this is to increase the applicant pool. Since it is not possible to create new teenagers in a short period of time, this requires attracting new clients to higher education. Bishop and Van Dyk (1977) have commented extensively on this possibility, and their analyses are not optimistic. Another way to stave off decline, the one which motivates this article, is to increase the yield from the traditional pool, by inducing high-school students to choose college rather than another activity after graduation.

Roughly one in four individuals aged 18 to 24 attended college in 1978 (Frances, 1980, table 12c). For men, the precise figure was 25.1 percent, down from a high of 28.9 percent in 1969; for women it was 23.7 percent, down from a high of 25.2 percent in 1976. The population of individuals in this age group totalled 28,980,000 in 1978; by 1996 this figure should drop to 22,864,000, and beyond 1996 it will rise to a level somewhere between these extremes (Frances, 1980, table 17). If participation rates hold around their current level, college enrollments will drop by 1.1 million; if participation rates rise by two percentage points, the enrollment loss will be half this figure. This has led naturally to a policy question: What can universities or government do to increase participation rates, and thereby offset projected enrollment declines?

The question has two components. First, what policies are available or feasible? Raising everyone's income may have demonstrable positive effects on college attendance, for example, but doing so is extremely expensive, and helping colleges is insufficient justification for that

otherwise commendable expenditure. Second, what variables determine students' decisions whether to enter college, and among these which are susceptible to outside influence?

I have argued elsewhere (1981) that the answers to both of these questions are clear enough for policy analysis to proceed. Direct tactics available to institutions or agencies range from providing information to building new colleges; indirect ones range from intervening in high schools to giving parents tax credits. Certain of these are discussed with some regularity, and I have outlined several discussion models. Although the list of potential tactics may differ from mine, it is unlikely that the true list's dimensions are substantively different. I have also asserted that the list of variables which influence student decisions and their relative importance are clear, and it is this assertion I expand here.

Historically there have been two dominant modes of inquiry into student decision making, one stemming from a sociologic perspective and the other from an economic perspective. In recent years there have been some studies integrating the two perspectives, but these have broken little new ground. At the risk of over-simplifying the distinction, one can say that sociologists are interested in educational attainment as it relates to the general social-attainment process: individuals seek postsecondary education both to demonstrate their success and to secure consequent symbols of success such as prestigious occupations or high incomes. The emphasis is clearly social, though; it is education's role in securing the regard d'autrui that is important. Economists, on the other hand, are interested in the selection of education over other postsecondary activities and specifically in the attributes of postsecondary education which make it more valuable (in the benefit-cost sense) than other options. The student's motivation for making

a given choice is interesting only insofar as it determines the criteria he or she applies to options' attributes; it is the effect of those attributes on the student's choices that is of interest.

Neither sociologic nor economic inquiry into student choice processes comes in pure form. Moreover, the specific theoretical underpinnings of different studies vary, and this variation leads to differences in the variables studied and the methodologies applied. The review begins with sociologic approaches to analysis of student choice, and then moves to economic approaches. This reflects, in a general sense, the historical sequence of the research.

The general conclusion from the historical review is that seven major factors influence college choice: family background, neighborhood context, school context, student achievement (or ability), college attributes, college effects, and labor-market conditions. Different studies rely on widely different methodologies, metrics, and report formats, making it impossible to compare effects in any strict, quantitative sense. But it is possible to make some rough comparisons, and from these it is reasonable to conclude -- as I do following the historical review -- that family background, student achievement, some college attributes, and labor-market conditions have strong effects on college choice; that school context, some other college attributes, and college effects have moderate or potentially moderate effects; and that other influences are fairly week. I return to this ranking and discuss its implications in the concluding section.

## Sociologic Models of Student Choice

Sociologists variously study social structure, social interaction, or social attainment. One of the major research themes in social-attainment research involves the roles of schooling in the status-attainment process. The plural reflects schooling's dual features: it represents status, in the sense that to be educated is to be socially successful; and it secures or

transmits status, in the sense that education opens paths to occupational or financial prestige. Much work in this area focuses on the relative importance of background and contextual factors in the educational attainment process. Such work is useful and important whether one views educational attainment as end or means.

There is, obviously, considerable ambiguity in the distinction between "background" and "context". To a geneticist, for example, genotype is background and everything else is context; to the school-effects researcher, the school milieu is context and everything else is background. Even so there is considerable agreement on the broad distinction between genotype, phenotype, and household environment, on the one hand, and neighborhood or school context, on the other. This agreement has spawned a wealth of studies seeking to explain the relative effects of different background and context attributes on educational attainment. Since an important step in educational attainment is college entry, this research is relevant to our review. For our purposes, however, the distinction between background and context is less important than the importance of specific variables, particularly those susceptible to outside influence.

If social status were measured at birth, sociologic status-attainment theories argue, family social status would be the major determinant of eventual social status. The world works otherwise. Families transmit social status to children, but they do so predominantly by a variety of indirect means. A child's social status is only measured when he or she is an adult. In the meantime, there is a continuing conflict between transmission forces and mobility forces, the latter causing children to end up being of different social status than their parents.

Mobility forces become stronger than transmission forces as individuals age, so the longer one waits to measure social status, the more chance mobility forces have to work. Thus it is generally true that family social status has a larger effect on educational attainment than on occupational attainment, and a larger effect on the latter than on financial attainment. If one can insure that educational attainments will be those dictated by family background, then one can help preserve a differentiated class structure from generation to generation. If one decouples educational attainments from family background, then class structures should dissolve. Bowles and Gintis (1976) argue that the American educational system preserves class structures; others, notably Jencks and his associates (1973, 1979), argue that this is only partially true, and in any case that the corollary argument (that equalizing education equalizes society) is questionable.

The resolution of this theoretical battle is less important here than the collection of school-attainment studies it has driven, and it is to those I now turn. Here, as throughout this article, the focus in text is on major studies only. The bibliography provides a more complete list of the research reviewed.

Background and Ability. Blau and Duncan (1967) analyzed a 1962 national sample of males aged 20 to 64. They documented selected aspects of the process by which family status background affects the son's occupational attainment. Four waves of variables in the life cycle constituted the model, beginning with father's education and occupation, followed by son's educational attainment, son's early occupational status, and finally son's current occupational status. The analysis did not contain any measures of academic ability of school experiences, or of other background influences on educational and occupational achievements, a limitation imposed in part by the employment of cross-sectional data gathered by the Census Bureau.

The parameters of the model were estimated using path analysis, and indeed the importance of this basic model in relation to the development of social research may be this methodology. (See Duncan, 1966, for a discussion of the methodological issues in the path analysis of social mobility).

Sewell and Shah (1967) extended Blau and Duncan's model to include, for the first time, ability variables and a variety of measures of within-school social-psychological and interpersonal influences in addition to socioeconomic variables. Sewell and Shah continued to use Duncan's path analysis techniques, but were able to analyze a longitudinal data set for a national sample of males first surveyed in 1955 as Wisconsin high-school sophomores and followed up in 1964.

The Sewell and Hauser model (1976) continued this extension of the Blau and Duncan model. It included various measures of socioeconomic background and academic ability and also measures of the individual's performance in high school, perceptions of the influence of "significant others", post secondary educational plans, and occupational aspirations. Sewell and Hauser began their analysis with a simple model including only socioeconomic background variables. Taken together, these accounted for 15 percent of the total variance in post-high school educational attainment. When academic ability was added to the model, the explained variance increased to 28 percent; adding the social-psychological intervening variables increased this figure to 54 percent. What is remarkable, Sewell and Hanser claim, is that all these

variables pertain to the secondary-school experiences of the men in their sample, which suggests that the school context plays a crucial role in the status-attainment process. In a subsidiary analysis of ability and social-background effects, they found that a high-status student was twice as likely to continue education as a low-status student was. Sewell and Hauser's model explains educational and occupational attainment far better than it explains income, which confirms the findings of Blau and Duncan.

One criticism of the Wisconsin data Sewell and Shah used is that the follow-up may have come too soon for the respondents to have had significant further educational or occupational experiences or to have established stable occupational status. Alexander et al. (1975) replicated and extended the basic Blau and Duncan model using the "Explorations in Equality of Opportunity" survey, a national sample of high school sophomores in 1955 folowed up with another instrument in 1970.

Alexander et al. (1975) included in their model measures of academic ability and educational goal orientations (plans after high school). The basic question involved status and ability effects upon occupational sorting as they vary with level of education. They examined these background/attainment interactions through parallel analyses of status background and ability effects on occupational outcomes for three levels of educational attainment: high school graduates, college dropouts, and college graduates. They assumed that status influences would diminish with increasing educational attainment, while ability effects would increase.

The findings from the study were consistent with the earlier Blau and Duncan reports. The model explained educational achievement better than occupational achievement, and the addition of measures of academic ability, two status background variables, and educational expectations markedly increased the explained variance in educational attainment. This work provided strong support for the inclusion of social-psychological influences in the Wisconsin model.

Trent and Medsker (1968) focused on the social-psychological factors -- family and peers, community and school environment, and personal traits -- that influence college-going. The intent of their original analysis of a longitudinal study of high-school graduates was to understand the individual values and attitudes that underlie aspirations, decisions, and choices, and to assess the impact of college experiences on the maturation of the individual.

Trent (1970) reanalyzed these data and reviewed other work to identify a wide array of motivational and personality variables. He focused on four groups: high-school graduates; graduates who entered college and withdrew before completing four years; those who completed four years without ceritification; and those who graduated with a bachelor's degree in four years. He performed both factor and discriminant analysis. The major discriminating factors were importance of college, certainty of plans, degree of autonomy, best friend's plans, participation

in extracurricular activities; number of subjects taken, and socioeconomic status. Family background ultimately separated college-bound from other students. Motivation was the key variable, arising from the family but determined also by the wider environment of peers, school, and community context. These variables mediated the effect of socioeconomic status and ability on educational attainment. Trent's findings were thus in accordance with those of Sewell et al. He did not find school experiences to have an effect on the college decision, and even argued that where parental encouragement is lacking teachers and counselors cannot compensate for this influence.

Griffin and Alexander (1978) attempted to explain the discrepancy between theoretical studies of schooling and inequality (Bowles and Gintis, 1976) which argue that schools reproduce inequalities from generation to generation and empirical studies (Jencks et al., 1972, 1979) which fail to document this same process. Griffin and Alexander included in their model measures of qualitative variations in the educational process (curriculum, college selectivity, image, contact with teachers) rather than purely quantitative indices of exposure to schooling, along with socioeconomic variables and ability measures.

Griffin and Alexander assessed the relationship between status and earnings and variations in educational experiences by focusing first on the consequences of attending different secondary and postsecondary schools and second on the academic experiences and allocative mechanisms within schools and colleges. They examined these two issues separately, using a 1955 ETS longitudinal survey of 35,000 high school seniors followed

up in 1970. The major conclusion from the former analysis was that high school differences, between and within schools, have different effects on different groups of students. They argued that studies should assess qualitative variations in schooling before resorting to "luck" (Jencks et al. 1972), to explain that portion of the inequality of attainment not explained by traditional status variables.

Context. Natalie Rogoff (1962) explored the thesis that community context influences the aspiration of youth. Her research design included not only variables measuring type and size of community but others measuring individual and school differences. She analyzed 35,000 records from the 1955 ETS survey, and found that small towns and suburbs are better equipped to produce college-goers than large cities. Her thesis led to further research concerning neighborhood effects on educational aspirations and attainment. One such study was Sewell and Armer's (1966) reanalysis of the 1957 Wisconsin survey (which did not cover any large northeastern cities). They argued that community context has an important influence on educational plans, based on a model also including sex, academic ability, and socioeconomic background. Sewell and Armer found that controlling for sex, ability and SES simultaneously greatly reduced the relationship between neighborhood status and college plans. They also found community context to have more influence on the aspirations of girls, particularly those from high-status neighborhoods,

than on those of boys. A long and lively debate around these studies led to the general sense that community context is not one of the major determinants of aspirations and college plans; rather, it appears important because it reflects a causally prior variable, family background, which is a major influence. The apparent effects of community thus reflect the clustering of certain social classes in certain communities coupled with the mediating role of school and community environments found by Trent.

Access. Anderson, Bowman and Tinto (1972), the classic study here, cited Medsker and Trent (1968) as the only prior attempt to trace the effects of college accessibility. Anderson et al analyzed the data from Sewell's 1957 Wisconsin survey and the four-state 1966 SCOPE survey. They investigated the effect of college availability controlling for socioeconomic status and academic ability. The model included background and ability as prior influences on the decision to enter college. Since Bowman was an economist, it also included crude measures of two new factors: investment variables (cost, ability to pay, admissions criteria) and awareness of college options. Even so, Anderson et al. concluded that family status and personal ability outweigh accessibility in college-going decisions.

This last group of studies differs from its predecessors in one key respect: it implies, contrary to purely sociologic theory, that the availability and attributes of colleges interact with aspiration for college to produce a pattern of college-going decisions. If college location has an effect -- as Anderson et al. argue -- then it is not unreasonable

to expect other college attributes, such as offerings or price, to have an effect on individual decisions. This argument leads easily to a general argument that the attributes of colleges enter students' deliberations along with individual aspiration for college. Aspiration is, in this general argument, the major precursor of educational attainment, and it evolves much as sociologists assert it does. Choice, on the other hand, may depend both on aspiration and on college attributes, and therefore depart commensurately from sociologic predictions. The departure is predictable, economists argue: college is, like any other good, evaluated by consumers in light of product (college) attributes and consumer (student) preferences, and therefore college choice should follow microeconomic principles. This argument underlies a substantial number of studies, most of which neglect all but the strongest sociological determinants of aspiration and focus on the attributes of goods--colleges, that is--themselves.

Economic Models of College Choice

The basic economic model of the decision to attend college, the human-capital model, specifies a rational decision-making process whereby the potential degree holder calculates the costs and benefits incurred by entering the labor force directly from high school or by going on in various college majors, and then selects that path which maximizes the present value of his or her time and expected lifetime utility. The calculation may go beyond money, if students' preferences so dictate; however, this is rarely reflected in economic models. Empirical studies in this tradition roughly fit one of two approaches -- the income model and the employment model.

In the income model college-going decisions are influenced most heavily by the rate of financial return to cash and time investment in higher education. Benefits generally depend on the present value of the expected return from training. Occasionally other benefits appear: nonmonetary rewards that occur during the schooling period such as social prestige and the joys of student life and nonmonetary rewards after graduation such as job attributes, social status, and general satisfaction. The costs that occur during the investment period are direct monetary investments such as tuition and living expenses; opportunity costs such as foregone earnings; and nonmonetary costs such as anxiety, competition, long hours of study, and academic risk.

In the employment model expected lifetime earnings (or its nonpecuniary analogues) are less important than employment probabilities. In this model the economy develops and that development creates (or eliminates) places for workers with certain qualifications, college education (perhaps in specific disciplines) among them. Students consider these trends and choose college when doing so maximizes the chances of landing a job with satisfactory payoffs. Qualifications and job requirements may be measured explicitly, as Rumberger (1981) suggests. Alternatively, one may view education not as providing explicit qualifications but rather as indicating ability to learn from on-the-job training, as Thurow (1971) suggests. In either case it is the match between labor market and (educated) labor supply that motivates students, not an average estimate of lifetime earnings.

Gary Becker (1961) was a pioneer in human-capital theory. His broad concern was with the effects of investment in human capital--formal education, on-the-job training, migration, and health--on earnings (private rates of return) and productivity (social rates of return). His empirical analysis of the effect of investment in higher education on lifetime earnings employed 1940 US Census data on urban, white, male college and high-school graduates. The basic technique Becker used to estimate the monetary gain of a college degree was to compare college costs to the relative earnings of person with college degrees and high school educations. Becker estimated a return to college of investment of 10 to 12 percent after adjustments for historical effects. He attempted to isolate the effect of education from other influences on income by standardizing these effects. He estimated, after adjustment for resources at college entry, that no more than 20 percent of the return to college might be explained by the greater ability of college entrants.

One of the criticisms leveled at the human-capital models developed by Becker and others is methodological. The reason such studies find education has only modest effects on earnings, the argument runs, is that conclusions are always derived from highly aggregated data, obscuring variables in the population that may influence both schooling and earnings. Recent studies based on this argument have focused on the relation between the distribution of ability in the population and the differential estimated returns for various groups. These studies ask how the correlation between ability and education might affect the economic returns to education. They focus on appropriate measures of education and ability on how rates of return rise and fall with each successive education level, and on the relative importance of education and ability at each level.

These are similar questions to those underlying sociologic and psychologic models of educational attainment.

Griliches and Mason (1972) based their analysis on a sample of US veterans and measures including income, ability (the Armed Forces Qualifying Test score from the military record), education (years completed during and after service), personal background and parental status, and current occupation and status. They regressed income on education, on education and ability, on education and background, and on education, background and ability, and showed that schooling is statistically significant in explaining observed differences in income, whereas ability is not. Holding background and ability constant, an additional year of schooling would add 4.6 percent to income while a comparable 10 percent improvement in the AFQT score would only add 1 percent to income.

Hause (1972) attempted to disentangle the effects of ability and schooling on worker earnings over a worker's lifetime, by examining the relationship between ability and earnings within schooling levels. His model included much the same variables as Griliches and Mason's -- measures of earnings, education, and ability; and background variables including father's education, religion, health, and geographic location. Hause's analysis was based on four samples (NBER-Thorndike, Rogers, Project Talent, and Husen) and his regressions showed that ability differentials are associated with earnings differentials only for high levels of schooling. The main criticisms of this model (Weisbrod, 1972) have concerned its implicit assumption that other determinants of earnings are uncorrelated

with ability, education level, and background variables. This, in turn, suggests that motivation variables be included in human-capital models.

Olneck (1979) reviewed a wide range of effect-of-education studies and reanalyzed several major surveys. His conclusions matched the general findings of the human-capital theorists: educational returns are substantial, but they vary with other variables, notably race and the level of education involved. One smaller group of studies also deserves mention: narrowly drawn, heavily theoretical analyses of the timing of school-leaving decisions. Johnson (1978), for example, specified a model whereby additional education costs money and increases earning power, and then uses this model to ask how long a student ought to remain in school before the increased investment exceeds the increased earning power. A more recent study by Lazear (1980) is similar. In each case completing the analysis requires a substantial number of detailed assumptions about wage and interest rates, and the specific conclusions depend heavily on these. Thus the conclusions of the studies (generally, that the appropriate time to stop studying and begin working depends on both individual and social attributes) are less interesing than their clear application of the relatively pure economic model.

As we noted above, human-capital studies do not speak directly to college-going decisions; rather, they suggest that the connections between educational attainment and another measure of social attainment, earnings, are tenuous at best. The implications are twofold.

First, to the extent earnings represent social status, these studies suggest that additional education does not increase social status much, and therefore that the branch of sociologic theory which holds that education is the means for securing social status (rather than itself representing social status) is flawed. If individuals act rationally, this argument runs, and education-as-means sociologic theory is correct, then social background will not explain educational attainment. (Since social background does explain educational attainment, as we outlined earlier, then either another theory is necessary or, more likely, earnings are a poor measure of social status.) Second, since the human-capital studies (and particularly recent ones such as Freeman, 1976) find that college education is a low-return investment (except for some subpopulations), then individuals probably do not choose college as a desideratum. Instead, they choose it when it is the best among poor options or when prices (tuition, room and board, foregone earnings) are low. In this case the low return to investment in college is offset by the modest investment required. The best-of-poor possibility suggests that the influence of labor market conditions on college choice be studied, complementing analysis based on an employment model of college choice. The price/return argument suggests studies of price response. It is to these two group of studies I turn next.

Labor Market. Dresch (1975) and Dresch and Waldenberg (1978) asked about the effects of labor-market opportunities on decisions to attend college (and, prior to this, on academic achievement at high school). These authors contended that so long as it costs no more to educate the more able student and the returns

to schooling are greater for the highly able, then the ability distribution in the population constitutes the primary determinant of highly educated labor supply. The corollary may be that effective ability itself deteriorates in the population in response to declining rates of return to education. Dresch's educational adaptation model (1975) explained how the educational composition of the adult population responds to changes in technology and economy. He examined the labor force between 1926 and 1969, relating changes in demand for the technically skilled and changes in the composition of the labor market. Using highly aggregated data, Dresch found the primary determinants of educational attainments to be demographic characteristics, the educated wage relative to the uneducated wage (this suggesting an income model), the size of the educated market, and changes in economic and technological structures.

Dresch and Waldenberg developed an empirical model to show the effects of the labor market on college-attendance decisions. They asked whether perceived labor market opportunities and anticipated payoffs to education affect intellectual aspirations and thereby determine decisions to attend college. They relied on two samples, the National Longitudinal Study of the high-school class of 1972 and the American College Testing Program sample of high-school juniors. Ability was measured by scores on reading and math achievement tests. A logistic model predicted two dependent variables, "intellectual competence" and the decision to attend college. Results showed that father's education had a greater influence than mother's education on the decision to enter college. Parents'

income is a more important factor on the college decision than on the level of competence attained, as is the number of siblings in the family. The primary determinant of college-going decisions is the anticipated lifetime earnings and this variable is more significant for females than for males. Tuition is not a powerful influence in this model, but Dresch suggested that this may have reflected the omission of financial-aid data.

Dresch's models do not, in the final analysis, distinguish among status-attainment, income and employment explanations of college attendance decisions, since his labor-market measures for individual students depend heavily on background-based estimates of expected lifetime earnings. Nevertheless, they clearly suggest that labor markets must be considered in any comprehensive model of student choice.

Price. The second research agendum emerging from human-capital studies concerns the effect of price on student decisions. The basic argument is simple. College provides certain benefits, financially modest ones according to rate-of-return studies. These benefits may well vary from student to student, from college to college, and for specific combinations of student and college, but in principle they can be estimated. If a student considers a set of colleges whose benefits to him or her are (or are perceived to be) roughly equivalent, then the most attractive college is the one which charges least for those benefits. Similarly, if several students expect similar benefits from a given college, than the lower that college's price to a given student (it may vary across students after financial aid is considered) the more likely he or she will attend.

Subject to certain deviations at extremes, students will generally choose among colleges the one whose ratio of benefit to cost is greatest, and will actually enroll if that ratio is larger than the corresponding one for non-college options.

Most analyses of college effects suggest that, except for a select group of prestigious colleges, the benefit of college attendance varies predominantly with the length of attendance. The benefits of the standard four-year college stint are thus equivalent for most students, and the major element in cost-benefit analysis of college options is cost. If this argument is valid, then student decisions to enter should change as the price of entering college changes; alternatively, the probability that students in a given cohort of prospective college entrants will choose to enter college should vary with the price they must pay.

Jackson and Weathersby (1975), McPherson (1978), Weinschrott (1977), and Cohn and Morgan (1978) have reviewed a variety of price-response studies, and there is no reason to repeat their detailed work here. There has been further work by me (Jackson, 1977), by Weinscrott (1978), and by Tierney (1980) since then, which buttresses earlier conclusions. In general, three propositions summarize the price-response work.

First, price (tuition and living expense, adjusted for financial aid) has significant and substantial effects on student decisions. Jackson and Weathersby (1975) estimated that price changes of around $100 1972 dollars near the mean were associated with

differences in enrollment probabilities of roughly one percentage point, a figure which has held up relatively well under subsequent scrutiny. (McPherson, 1978; Cohn and Morgan, 1978).

Second, the effects of financial aid are not quite the same as the effect of negative price differences. According to my 1977 study, the aid award itself has a substantial effect on student decisions, one which overwhelms the effects of specific amounts of aid for non-extreme awards. There is considerable evidence from other studies (Leslie and Fife, 1974) that this is a valid conclusion, although the methodology of these makes their specific estimates questionable (Weathersby, 1975).

Third, although price effects are not large in an absolute sense, they are large by comparison to other forces in the student-choice process: larger, in fact, than virtually all other effects save those of family background, academic performance, and college location. This suggests both that price is an important variable and that the collection of important variables leaves much unexplained.

Policy Considerations

Four studies, two of them already mentioned, involved attempts to inform policy decisions. The four policy-directed studies were economic in tone, reflecting the greater manipulability of economic factors, but the models generally were eclectic and comprehensive. Hoenack (1971) was concerned about the efficient allocation of public subsidies to college students, Kohn et al. (1976) about the relative impact of college, labor-market and background-variables on choices, Dresch and Waldenberg (1978), about the effects of labor markets, and I (Jackson, 1977) about the effects of financial

aid. Hoenack's analysis was cast in too narrowly economic terms, and his conclusions suffered as a result; the other three studies reflected both sociological and economic theories of college choice, and as a result their conclusions were cast in a more complete--and therefore more realistic and defensible--context. However, none of these analyses proceeded from a complete set of variables and thus each is open to speculation about the effects of omitted variables. The work of Kohn et al., for example, includes no direct measure of choice set (which colleges and jobs the student considered) or financial aid; simulations provided fictional data on each. My study, on the other hand, used as a direct but overly narrow measure of college choice set the colleges actually applied to, but it did not measure or simulate labor-market opportunities. Dresch and Waldenberg's major analyses were based on aggregate data, and thus failed to recognize the effects of individual differences and the interactions between these and large forces.

Since the "comprehensive" studies are insufficient to compare different variables' influences on college choice, such comparison must rely on qualitative, informal inference from the corpus of work on college choice. In reviewing existing studies, I amassed a list of variables which have been important in analyses of college choice. From this I derive a broadly specified list of variables with recurrent importance in empirical history. Omitting any of these variables from a choice model presumably will limit that model's applicability.

Ranking these variables, which I would ideally do on the basis of their quantitative effects, presents three problems. First, evidence on some variables' effects is scanty, although recent comprehensive studies have gone far toward eliminating this problem. Second, some variables which ought to have strong effects vary little from student to student, college to college, or time to time, and thus they account for little variance in observed student choices. If the variance of such variables were for some reason to increase (if, for example, strong differential college effects on lifetime earnings were to arise, as they arguably have at the post-baccalaureate level), then they might suddenly become important, even though they do not explain current choices well. Third, some variables have strong effects not because they act on choices themselves, but because they mediate the effects of other variables. If the connection between causal and mediating variables diminishes (or if the causal variable is added to a model relying only on the mediating variable), the effects of the mediating variable will diminish commensurately. This problem is most pronounced for context variables, and undercuts arguments that changing contexts without changing earlier variables will affect choice.

With these problems in mind, I list in Table 1 the important determinants of college choice, basing the list on empirical results from the sociologic and economic perspectives. The list proceeds from family-background to labor-market variables, reflecting both the research history and a rough causal ordering.

TABLE 1

1. Family Background. Typical measures include parents' educations and occupations, characteristics, and so on. A strong influence, particularly when indirect effects (through mediating variables) are considered.

2. Neighborhood Context. Often measured analogously to family background: occupational distribution, median income, availability of libraries and the like, and so on. Strongly correlated with college choice, but little effect independent of family background.

3. School Context. Occasionally indicated by school characteristics such as student/teacher ratios, per-pupil expenditure, availability of electives, and so on, but usually indicated by peers' aspirations. A frequent specification is the percentage of the student's friends who plan to go to college; a similar one is the college-bound percentage of the high-school graduating class. Also highly correlated with college choice, but some effect remains when family background is controlled. Even so, independent effects of this variable are moderate at best.

4. School Achievement or Ability. Ability is important on theoretical grounds, but pure measures are unavailable; grades, class rank, and test scores are typical specifications. A strong influence, even once background and context variables are controlled.

5. College Attributes. Four are widely analyzed:

   A. Availability. Usually how distant the nearest college is; sometimes qualified by the student's test scores and the parents' incomes. A strong influence.

   B. Price. Conceptually, the student's estimate of college costs; usually specified as tuition plus living expenses and sometimes foregone earnings. A moderate influence.

   C. Price adjustments. A moderate influence as well, but listed separately because they appear to have slightly stronger effects than price and because they influence choice later in the process than price does.

   D. Environment. Theoretically important either as status definition (social prestige being the important environmental dimension) or as an object of consumption. Nevertheless, a weak influence.

6. College Effects. The most important variable from the human-capital economic perspective, but empirically a weak influence because either there is little variation from college to college or student to student or because existing specifications of college effects--virtually all are some function of expected income--are inadequate. College effects depend, in part, on labor-market conditions, in the sense that a shortage of college-education labor will increase the demand for such individuals and therefore the price paid for them. This is different from the labor-market effects listed next.

7. Labor Market. Evidence here is limited to one study, which suggests strong effects. Two mechanisms are involved: the pull (or push) of a job after high school as an alternative to college, and the skill and training requirements of the labor market which college might satisfy.

The first four of these variables represent sociologic theory, as do status-enhancing college attributes and effects. College attributes and effects also represent economic theory, along with the last variable. Thus one overall conclusion from this review is that student decisions about college are theoretically eclectic, and therefore that policy or further empirical work cannot rely on a single theoretical perspective. This means that empirical research on college choice entails multivariate analysis of longitudinal data. The most recent data suitable for this describe 1972 high-school graduates, and thus the availability of follow-up data from the 1980 "High School and Beyond" study should permit significant empirical advances. The overall conclusion also means that narrowly conceived programs aimed at college choice may not work as intended, particularly if they neglect mediating or countervailing variables.

One striking aspect of this review is the degree to which relatively old empirical studies forecast the list of important variables. In only two cases--financial aid as a price adjustment, and labor-market conditions--is the list strongly influenced by recent studies. This is not to suggest there has been no relevant recent work; rather, it means recent studies generally have borne out earlier results. If empirical knowledge is plotted against time, the diagram is a leveling curve whose slope currently is near zero. Analysis of the "High School and Beyond" follow-up presumably will increase knowledge some, but there is little reason to expect the steep learning curve to reappear. The second conclusion from this review--which echoes my earlier assertion--is thus that although much variation among student decisions remains unexplained, the important features of the process are clear.

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